Harnly, M.E. and Petreas, M.X., Flattery, J., Goldman, L.R. (2000). Polychlorinated Divenzo-*p*-dioxin and Polychlorinated Dibenzofuran Contamination in Soil and Home-Produced Chicken Eggs Near Pentachlorophenol Sources.

The sources and pathways of food chain contamination of the persistent and toxic polychlorinated dibenzo-*p*-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) are unclear. PCDD/PCDF levels in eggs from chickens raised in backyards near Oroville, CA, near a former pentachlorophenol (PCP) wood treatment facility (WTF) and four former PCP waste burners, were previously reported to be elevated (above a level of significant cancer risk, i.e., 1 part per trillion (ppt) international toxicity equivalent (ITEQ) and above levels in eggs from a similar rural area with no such facilities). Limited sampling suggested associations with low ppt soil levels. Further investigations are reported here. Soil concentrations in samples (*n*=26) collected from the foraging area of a single Oroville backyard have a geometric mean of 30 ppt ITEQ and are uniform, suggesting airborne deposition. Additional samples were collected from homes in Oroville and Stockton, CA also near a former PCP WTF. Geometric mean dioxin levels in eggs are 2.2 and 1.8 ppt ITEQ for Oroville (*n*=35), and Stockton (*n*=5), with 78% of samples above 1 ppt. Corresponding soil geometric means are 6.2 (*n*=17) and 6.6 (*n*=5) ppt ITEQ. Regression models estimate that soil concentrations of 0.38 and 2.7 ppt ITEQ, depending on whether chickens free-forage, predict and egg concentration of 1 ppt ITEQ. The combined evidence suggests that local industrial sources can contribute to environmental contamination. The soil concentrations associated with significant egg contamination are low, much lower than the dioxin level of 1000 ppt, frequently used for children's ingestion exposures, and potentially widespread. A broad and global concern for PCDD/PCDF sources and environmental levels, particularly with respect to human consumption of animal products, is underscored.